THE MOTOR AGE

VOL. I. CHICAGO, JANUARY 4, 1900. NO. 17.

ENTERED AT THE CHICAGO POST OFFICE AS SECOND-CLASS MATTER.

THE MOTOR AGE is published every Thursday by THE CYCLE AGE COMPANY, at 324 Dearborn St., Chicago.
Eastern Office: 1427 American Tract Society Building, New York City.
Subscription price in the United States, Canada, and Mexico, $2.00 per year; foreign countries (in postal union), $4.00 per year, payable invariably in advance.
Advertising rates on application. Copy for changes in advertisements must be in hand the Friday previous to publication to insure insertion.

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WAITING FOR DEVELOPMENTS

SMALL CYCLE BUILDERS ARE ANXIOUS TO GET INTO THE MOTOCYCLE INDUSTRY—IN POSITION TO BUILD EVERYTHING BUT THE MOTORS—AS SOON AS THEY CAN PURCHASE SMALL RELIABLE MOTORS THEY WILL GO AHEAD

A representative of the Motor Age recently called on a selected list of ten bicycle dealers in Chicago. The ten were of the class who maintain shops and stores outside the central business district, keep them open the year around, and, in addition to renting and repairing of bicycles and selling bicycle accessories, sell and rent bicycles of their own make—or assembling. They are of the provident class who have small bank accounts, buy largely for cash and do a profitable business on a limited capital.

Will Assemble Parts

Many of them had already expressed a desire to get into the automobile business in the same manner in which they are in the bicycle business, viz., to buy and assemble the parts. It was to ascertain the general feeling among this class of mechanical men, who promise to become an important factor in the motor-vehicle industry at no far distant date, that a canvass of the ten firms was made.

Class of Trade Held

As naturally might have been expected their ideas leaned towards catering to the class of trade with which they already have an acquaintance. This is a class that desires some sort of "independent" vehicle, which can be used to cover long distances without dependence on local

conditions and a class that will pay only a moderate amount for its automobiles. In short the thoughts of these bicycle constructors turn towards the making of gasoline motocycles.

One Man's Opinions

Said one of them, "I have studied on the matter a great deal and have made up my mind to go into the business as soon as I feel that I can do so safely. I have not much money to put into it and cannot afford to lose what I do put in. I assume that I will be obliged to buy largely for cash, as I have done in the bicycle business. Indeed, I prefer to do so. It is the custom that I have followed and I intend to keep it up.

Will Build Only Cycles

"Of course it would be impossible for me to construct the kind of vehicles that could be sold to the society people who are after style, but I am satisfied from my talks with some of the people with whom I have been dealing for a long time that they are willing and ready to buy almost anything good in the way of a self-propelled cycle that does not cost too much. As far as the construction of the cycle itself goes, I am in a position to build a number of them. The only thing that is necessary is to find someone who can furnish me with the motive mechanism. As soon as I can find a gasoline motor—I take it for granted that I will have to have this class of motor—that has shown that it is thoroughly practical, just so soon am I going to get into the motocycle business.

Can Buy No Motors

"I have made some inquiries, and, while I find that there are people who are willing to have me try their experiments, I have not yet found anyone who has a tried and substantial device that he is ready to sell me. It seems as if there ought to be some one who would realize the future that there is in this class of business well enough to cater to it. There must be lots of others who are in just the same position that I am in. The profits from selling bicycle parts have surely been enough to encourage the making of parts for the motocycle builder."

Another one said, "I suppose it is still early to begin plans for building motocycles, but I am going to begin just as soon as I see my way clear to make it a success. I am not, however, going to take chances in losing any amount of money in the venture. There is a certain part of the work that I know that I can do successfully. The motor is the only thing that is troubling me. Once let me find a light, reliable motor, that does not depend on frequent depots for renewing supplies and I will go ahead. I expect that I will be able to buy such a motor by next fall and then I will get one and start in building a cycle to carry it. I am working on the plans now, but do not care to go ahead building until I know just what style of motor I will be able to buy. Once I have the motor, I will be under little expense to make the rest of the vehicle. The only cost will be the material. My time I count as of little value in the winter.

Confident of Selling

"As soon as I have found that I can construct a practical motocycle, I will go ahead making as many others as my capital will permit. I know that there is sufficient demand to enable me to sell all that I can make in short order."

There were other similar expressions of opinion. There seemed to be a general confidence among these small bicycle builders that they would have little difficulty in compassing the construction of all parts of motocycles except the motors. They are, almost without exception, expert machinists and have shops equipped with a fair amount of machinery of the very kind that is suitable for work on this class of machines. They can get the necessary cycle parts from any one of the numerous cycle supply houses either machined or in the rough.

Reason for Delay

The only reason that there are not a great number of this class of men already working on motocycles is that they do not know where to look for motors. It is equally true that any firm that offers this class of men a motor of a description that will fit it to be used on small machines, will find a ready sale for a large number of them. In France the supplying of small motors forms a not inconsiderable amount of the motor industry.

Some of the men interviewed expressed

a desire to get into the business in a more extended way than that of merely making motocycles and to construct light four wheeled vehicles on the accepted carriage builders' lines. They seem to have no fear of not being able to secure the proper carriage bodies, as, indeed, they can.

This is a branch of the industry that affords an immense field for profitable investment. The prospective buyers of parts will not, for the present, at least, be too critical of the goods that are offered them, demanding, only, that what they buy will be practical.

AUTOMOBILES IN SWEDEN

Consul Robert S. S. Bergh writes from Gothenburg, Sweden, in regard to the present condition and future possibilities of automobilism in that country. What he says in regard to the attention that the German government gives to her industrial interests is worthy of consideration with the idea of impressing on our own legislators, the necessity of doing the same. In many of the commercial pursuits we have allowed the Germans to outgeneral us, not in economical and practical manufacturing, but in the marketing of goods after they are manufactured. Some cases have shown the extreme of our failings in this respect, our goods being sold to German merchants, shipped to Germany, there marked with German names and then exported to South American countries.

While the prospect that Consul Bergh holds out is not an attractive one from the standpoint of immediate returns, it should be remembered that the first in any new field are the ones who are apt to reap the largest harvest and that a small amount spent in proselyting at the present time may be returned many fold in the future when it will be too late to gain a foothold without immense expense.

Mr. Bergh's report reads as follows:

"Many business men here think that the import of motor carriages into Sweden, if once properly started, will be considerable, provided they can be made durable, neat in appearance, safe and easy to handle, and not too expensive. Cab owners, especially in Stockholm, are considering the advisability of purchasing motor carriages, and a short time ago they sent experts to Berlin, to study and examine motor cabs manufactured in Germany. The report they made on their return was not altogether favorable. They said that automobiles which in catalogues seemed to be ideals of perfection in reality did not come up to expectations.

"The chief objection to the motor cabs, with accumulators or storage batteries, was that they could not make sharp enough turns. The cabs were built with the batteries placed close to the back wheels. The steering power of the front wheels was so small that the carriages could turn only in very large curves, making them unfit for use on narrow streets. Another inconvenience was that as soon as the cabs got on a road covered with a layer of sand an inch thick, they stopped helplessly.

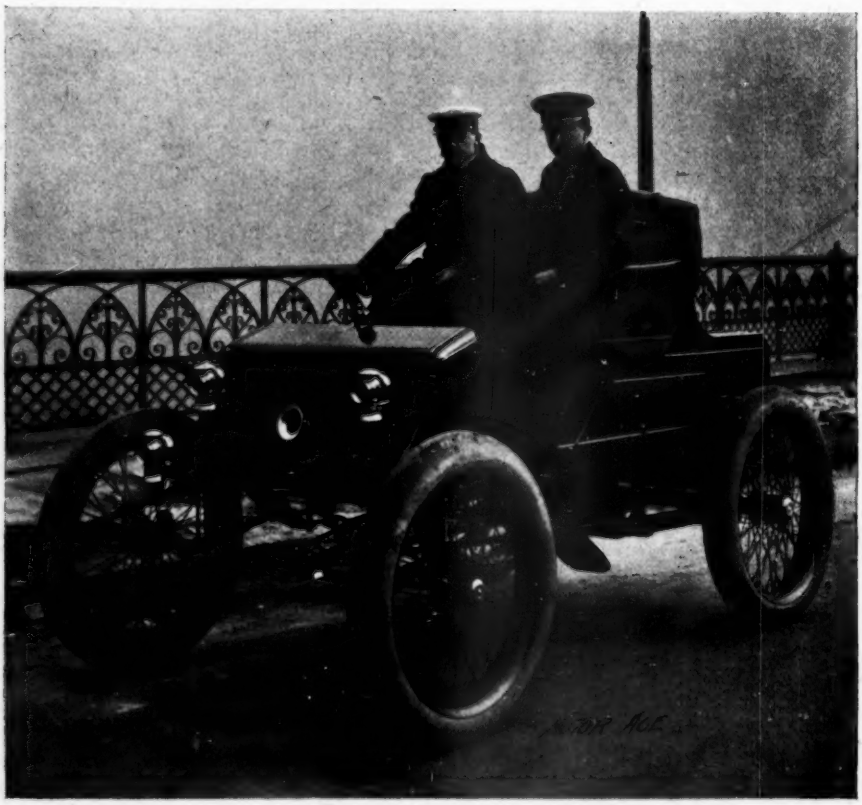
"Besides these inconveniences, common to French and German motor cabs alike, it was said that few of the carriages exhibited were of the type desired —that is, with room for from two to four passengers. Hunting wagons, motor cycles, delivery wagons, etc., for sportsmen and business houses were plentiful; but cabs were fewer and, as a rule, clumsy in appearance. A German manufacturer promised, however, to remedy the faults mentioned; but it is not yet generally known whether the prospective purchasers and the manufacturer can agree on terms. Manufacturers of motor carriages usually demand one-fourth of the price for thirty days' trial; while the cab owners in question desire free trial before purchase, because they are unwilling to buy such expensive machines without being sure that they are practically useful.

"At present, there is only a petroleum-

motor carriage and a light motor cycle in Gothenburg, both of French manufacture. I believe there is an American motor carriage in Stockholm; but American manufacturers ought to pay attention, also, to the markets in the other cities of this kingdom, especially Gothenburg and Malmo. It would be of great advantage for American firms to be represented here at once.

"Another thing of importance is electrical machinery in general, which will be in great demand as soon as the people have fully learned the value of their numerous waterfalls. A large electric-power plant will soon be built at Trollhattan; electric railways and tramways are being planned for Gothenburg, Lund, Bjerrod, and Jonkoping. In this line, as in everything else, the Germans are always watchful; they pay close attention to details, and, if necessary, send experts here to study plans, etc., whereby they greatly increase their chances to introduce machinery. If it is not practical for Americans to do likewise, they could possibly employ active agents to represent them here.

"Electric-motor carriages are preferred for city traffic. Those with benzine motors are said to be noisy and to emit offensive gases."



WINTON RACING MACHINE

MOTOR-VEHICLES ON HIGHWAYS

INTERESTING DISCUSSION ON THE FUTURE EFFECT OF MOTOR-VEHICLES ON THE CROWDED TRAFFIC OF LARGE CITIES—SMALL DIMENTION AND EASE OF HANDLING WILL PERMIT OF FASTER SPEED AND INCREASED CAPACITY

In a paper recently read before the Automobile Club of Great Britain by R. E. B. Crompton, an authority on matters mechanical, he discussed the problem of traffic congestion in large cities as it is, and may be affected by the automobile. His deductions, while not greatly different from those which have been arrived at by other thoughtful students of the situation, come as a revelation to those who have not studied the question.

The matter of congestion of traffic is one that has puzzled the municipal authorities of many large cities and is one that seemed harder and harder of solution as the cities grew and traffic increased. The introduction of the horseless carriages, so far from complicating the problem, as many seem to think, offers a solution of the difficulty so simple, as shown by Mr. Crompton, that no one can fail to appreciate the vast advantage that the auto will give to all users of city streets.

Says the engineer:

An Engineers Reasoning

In addressing this audience I naturally fix on the points of greatest interest to automobilists, in which I include the vast and increasing army of cyclists. I include the great speed question, as it is one of the most important factors to be dealt with by regulation, both as regards street traffic and that on country roads. I hope to be able to use arguments which will be equally appreciated by you who are automobilists and by the public who are not, but who desire improvement in the existing state of things. I hope to show you how the admitted congestion of street traffic can be to some extent mitigated by well considered regulation of horse-drawn, as well as automobile, traffic, and that we may hope for immediate improvement even if the existing regulations are strictly enforced on every one who uses the streets, whether they be drivers of vehicles drawn by horses, automobilists, cyclists, or foot passengers. I also hope to show you that we automobilists have reasonable rights, and that the new conditions created by us and by cycling will necessitate certain new regulations being enforced on those who are responsible for the maintenance of our highways.

A Mistaken Idea

I am afraid that an impression has got abroad that the great spread of cycling and the introduction of automobilism have been attended by increased congestion of street tariff and increased danger to other users of our roads, and that this idea is present in the minds of a considerable number of men in authority is proved by the number of magisterial decisions which give any fair-minded person the impression that those responsible for these decisions consider that automobilism and cycling are both of them evils rather than benefits, and are therefore to be stamped out at all hazards by restrictive regulations and legislation.

Cause No Congestion

Of course, my present audience knows that this impression is erroneous; it is due probably to the natural conservatism of horse owners and horse lovers, who are also magistrates, and who have the idea that any increase of automobilism is antagonistic to the horse. It is also probably due to the fact that automobilism has caused country roads to be now so greatly used that countryfolk who were accustomed to wander over them at their own sweet will, undisturbed by the automobilist's horn or the cyclist's bell, resent any interference with their past license.

Causes of Blockades

Addressing myself first to the more important question of the congestion of street traffic, many people appear to think that every additional motor car or cycle put on the streets will be an additional cause of block or congestion of traffic, and perhaps will also have a tendency to increase the number of street accidents; but it can be easily shown that the reverse is the case, chiefly because automobiles occupy less space than horse-drawn vehicles carrying the same load, and because cyclists can, to a great extent, thread in and out through narrow lanes between lines of traffic, and thus utilize space which would otherwise be wasted. * * *

The regulation of street traffic is complicated by several considerations, such as the following: Our streets are not merely used as roads for intercommunication, but also as public promenades, so that one cannot consider the question of the regulation of street traffic without taking into account the great

part the promenading public play in the present congestion of traffic. Not only do foot passengers, especially ladies, greatly obstruct the footway by stopping to look in the shop windows, but carriage traffic is also purposely slowed down for the same reason. How often does one see a lady in barouche and pair occupying twenty feet of a street direct her coachman to drive slowly in order that she may have a better view of the shop windows, and actually cross to the off-side of the road for this special purpose.

The great popularity of the omnibus service is, I am informed by the District railway authorities, due to the outside seats being so attractive as points of view for sightseeing. We must not therefore lose sight of the fact that the attractive shop fronts and other attractions play a great part in delaying both vehicular and pedestrian traffic.

Can Carry Many People

After outlining the police regulations necessary to avoid blockades and delay to traffic, Mr. Crompton quotes figures to show the advantage of the automobile omnibus over street railroads, for carrying large numbers of passengers. He shows that with the general adoption of automobiles there will be a greater amount of room on the streets, due to the smaller dimensions of the self-propelled vehicles, and that, consequent on this and the greater ease of management, a higher rate of speed will be safe and advisable. He shows that a line of automobiles under these conditions would be capable of handling a greater number of passengers in a given time than even a well regulated railroad service run at its maximum capacity. Continuing, he says:

Regulation of Speed

This brings me to the second part of my subject, namely, speed regulation of motor vehicles and cycles. It will be seen from the above figures that the amount of traffic that can be carried on the road is almost proportional to the speed—that is to say, a traffic at an average rate of ten miles an hour will transport double the number of passengers that could be transported at five miles an hour, but those who are so clamorous to reduce speeds do not apparently see that halving the speed means doubling the number of vehicles required to carry a given amount of traffic, and hence doubling the overcrowding and congestion of the streets. Speed, therefore, is desirable, not only as it saves time in the transport of passengers and goods, but in that it reduces the number of vehicles in the streets. The speed of foot passengers and horse-drawn vehicles has in the past been practically limited. A man can walk at four miles an hour, a horse from four to five, and light vehicles can be drawn by a horse trotting at from nine to ten. Hansom cabs and private carriages are frequently driven at twelve miles an hour. None of these rates are called furious driving, and rightly so, as traffic has been safely conducted at these rates for many years. The real measure of safety lies in the distance in which a driver can pull up in case of emergency, such as a person falling in the road, or of a child running suddenly in front of an advancing vehicle. In all cases it will be seen that the real measure of the danger is not the speed of the vehicle, whether horse-drawn or automobile, but in the available controlling power.

Difficulties in Driving

I have been at considerable pains to notice the controlling power of a skilled hansom cab driver, and I find that about thirty feet is required in which to stop a hansom cab going at twelve miles an hour, a speed which is not considered furious driving by the police—that is to say, if the road is in ordinary winter condition, either on macadam, wood or asphalt. On a dry road in perfect condition it is probable that this distance might be reduced to twenty-five feet, but a properly braked automobile driven at the same speed can be pulled up to a certainty within fifteen feet, and a cycle fitted with modern brakes in ten feet. It is therefore certain that future regulations, instead of restricting the speed, ought to prescribe the distance within which the vehicle can be pulled up in case of an emergency. It would follow on this that the police responsible for the regulation of the traffic could, if they considered that a driver is driving furiously, test it by signaling him to stop, and if he does not stop within the prescribed limit, breach of regulation could then be easily proved against the driver. In this way much of the hard swearing and ridiculous statements made by suburban and country police and others as to the speeds of automobiles and cyclists would be avoided.

Proper Rates of Speed

As the rate of speed would not be considered furious, provided it was shown that the driver was capable of pulling up within ten feet in a thoroughfare crowded with traffic, whereas in a country road, where he has an unobstructed view, and where there is little or no traffic, the speed limit, if any, should be that it should not cause a nuisance by noise, provided that in all cases his brake power be sufficient to enable him to pull up within forty feet. The correct speed for automobilists and cyclists proceeding through traffic is a little higher than that of the traffic going the same way. All drivers and cyclists will agree with me that if their speed is less than that of the traffic, the risk of obstructions to traffic and of accidents is far greater than if they are overtaking it. Probably, if experiments were made, it would be found

that a motor car can be driven with perfect safety, and with a minimum of obstruction to other traffic, somewhat in excess of twelve miles an hour. As I have shown, reduction of speed keeps the car a longer period in the public streets; logically, it increases the obstruction caused by it, and, of course, the same holds good with cycles.

Ignorance of the Public

The ignorance of the public on speed questions is astonishing; few people seem to appreciate the difference between average and maximum speed. In traffic, in order to maintain an average speed of ten miles an hour, it is probably necessary at times to pass other vehicles at thirteen or fourteen, and on this point no one seems to be able to interpret the regulations. It appears to be probable that those responsible for the regulations when they fixed the limit in London of twelve miles an hour meant to allow automobiles to be driven at a speed slightly in excess of the ordinary horse-drawn light traffic, and if my interpretation of this is correct the twelve miles an hour fixed is an average rate. It is a great pity that so much uncertainty exists on this point of the speed that is allowed. I think on the whole we may congratulate ourselves on the very reasonable view on this question taken by the metropolitan police. They appear to consider it their duty not to interfere with automobilists so long as their cars are thoroughly under control, and are not driven to the danger of others, and this is the proper view to be taken of the situation. They appear to adopt the same attitude as regards cyclists, and it is a thousand pities that their view is not universally adopted by the police in all other towns and country districts.

Controlling Power

When I talk of the controlling power that a driver has over his vehicle, I must not confine myself solely to his braking power, but I also refer to the steadiness and promptitude with which he can change his direction and swing readily clear of any sudden obstacle. In a horse-drawn vehicle there are two brain powers, so to speak, that is to say that in case of sudden necessity, either for stopping or to swerve, the impression has to reach the brain of the driver, and thence to be conducted by his hands to the brain of the horse, and again through the brain of the horse to his feet, which in turn govern the movement of the vehicle he is drawing. All this takes considerable time. In the case of the cycle or motor vehicle the brain impression of the driver is acted upon almost instantaneously through his hands, and hence the vehicle is diverted or stopped. The shortness of a motor vehicle as compared with a horse-drawn vehicle permits of extremely rapid, and hence instantaneous, swerving to the right or to the left in order to avoid vehicles or foot passengers.

After the lengthy consideration of matters that are, to a large extent, of merely local interest, Mr. Crompton says, quite oblivious to the fact that such ordinances as he suggests are already in force in some American cities, although seldom enforced:

Causes of Accidents

One frequent cause of accidents or punctures of tires is found at places where the road has been torn up for pipe laying, drainage or similar work. After the trench has been filled in, no attempt is made to replace the road metal and roll in the stones.

It may appear Utopian to suggest that it should be made an indictable offense to leave any material in a public highway which would puncture pneumatic tires, but think that the expense which would be put on a road authority in keeping its surface clear would be amply compensated for by the great public convenience and the saving of damage not only to motor cars and cycles, but to the horses' feet. No one need leave broken glass, nails, thorns, or other puncturing materials in a roadway unknowingly, and any such things that are really accidentally left there ought to be removed by the servants of the road authority within a reasonable time, and this can easily be done by a daily inspection of the road.

Autos to Supplant Trolley

After further comment on the advantages of auto-omnibus service, Mr. Crompton concludes:

I have shown how small is the carrying capacity of a railway, as compared with an undisturbed smooth surface roadway. Now that we can have good wood pavements, and that automobilism will soon become the rule instead of the exception, the street railway is an anachronism. The street railway is all very well for a new country where the roads are bad, but when a town like London has perfected roads, they should not be tolerated. I think all automobilists ought to combine to educate the public and the local authorities on this matter. The traffic can be carried better, safer and cheaper by automobile vehicles on a smooth asphalt road than on a tramway, whether the latter be electrical driven or not.

RAILWAY COMPANY SHOWS FIGHT

BOSTON ELEVATED RAILWAY COMPANY ADVERTISING TO SECURE RESTRICTIVE LEGISLATION AGAINST AUTOMOBILES—ANIMUS OF THE EFFORT—OTHER AUTOMOBILE NEWS

Boston, Mass., Dec. 30.—Automobile accidents in this city have kept pace so well with the increase in the number of automobiles that there is talk of restrictive action on the part of the city officials. A strange circumstance in connection with this is the appearance in an afternoon paper today of what appears to be an advertisement, although reading like an editorial. It is set in advertising type such as is affected by the Boston Elevated Railway Co. when endeavoring to mould public opinion in its own way, and reads as follows:

Railway Company's Side

"One day this week the papers reported two serious automobile accidents, resulting in injuries to the person, which had taken place in Boston within the preceding twenty-four hours. As the number of such vehicles in use on our streets increases, occurrences of a like nature will inevitably be multiplied unless some means are taken to prevent.

"It is quite beside the matter to say that accidents are all the time taking place from various causes, that in a great city personal dangers of one kind and another necessarily menace life and limb; and, in particular, that people get hurt from street cars, from carriages drawn by horses, and from bicycles. To make such an answer revelant it must be shown that the use of automobiles under present conditions brings no new element of peril, or at any rate, none which is worse than that which already exists.

"A Perpetual Danger Signal"

"The street car passes only along a well-defined course, where easily visible rails are a perpetual danger signal. The horses drawing a carriage not only give warning of approach by the clatter of metal-shod hoofs on the stony pavement, but possesses (sic) in the horses themselves a protection for pedestrians which is efficient in the vast majority of instances; since a horse, which is neither vicious nor frightened, will not willingly trample a man down. Even when a man is trampled down, the chances of his being killed are very much smaller than when he is thrown at once under the wheels of a heavy vehicle. Bicycles at worst are light weights.

"In brief, if we are to have automobiles rushing hither and thither at all times of the day and night throughout streets, there will have to be, unless the public is willing to incur frightful risks, some well-considered means of insuring that the coming on of such a vehicle shall be unmistakably announced at every instant of its progress, and that in such other ways as the exigency demands, danger from this source shall be reduced to a minimum."

Excuse for the Screed

The "article" is headed "'Ware the New Juggernaut." The excuse for its publication is found in two accidents. In both cases the accidents were not unusually serious. Arthur Partridge, a man of thirty-five, was hit by an electric cab at the corner of Washington and Hanover streets. A crowd was watching a man drawing pictures in a window and Partridge went out into the street to get around the crowd. He was struck by the cab, which was operated by Frank M. Shea, and was thrown to one side. He sustained a compound fracture of the nose. Driver Shea stated that he rang his bell continuously while approaching the crowd and that he was going slowly, when Partridge ran directly in his path.

Trifling Accident

Jerome S. McCarthy of Chelsea was struck by a runabout driven by Charles G. Williams of Cambridge. McCarthy was crossing Causeway Street, Boston, when struck. He was knocked down but escaped with a few bruises. Mr. Williams took him into the wagon and car-

ried him home. He rang his bell for several seconds before the accident, but McCarthy took no notice of it.

The drivers of the electric cabs are instructed to ring the bell every few yards between crossings and always when near crossings. If people will not listen, they must expect to be struck. The paper in question will probably insist on a man walking with a red flag in front of every automobile.

Boston has a horseless fire engine, but horseless carriages will not be adopted for the district fire chiefs for some time. Fire Commissioner Henry S. Russell, when interviewed by the Motor Age representative on this point, said: "I will have one or more automobiles in the department just as soon as I am thoroughly satisfied that they are as reliable as a horse in emergencies and for continuous duty. The is little or no necessity of officers arriving at the scene of a fire much ahead of the apparatus, for the simple reason that they alone cannot work the hydrants."

The Crompton Automobile Co. is being formed in Worcester to build automobiles under patents issued to Mr. Crompton of weaving-loom fame.

MAY BAR GASOLINE RIGS

New York, Dec. 29.—There is blood on the face of the moon—perhaps.

George Murray, chief of the Bureau of Combustibles of New York City, has made the discovery that, according to his interpretation of section 765, chapter 378, of the laws of 1897, owners of automobiles which require the use of gasoline, are technically violating the law. So far he has done nothing more than announce his discovery.

The makers say that they are not alarmed about the matter, but when asked what action they would take in case a driver of one of their machines was arrested, their reply is, "I don't know." They evidently have adopted the old motto, "Sufficient unto the day is the evil thereof," and intend to await developments. Certainly none of them is taking any steps to replace the prohibited fluid by a non-explosive. They are filling orders right along. Some of them are skeptical as to the application of the law. They say that Mr. Murray must be mistaken in his interpretation of it. It has been said that the companies will combine to defend the first automobilist arrested on the specified charge and make the affair a test case. None of the officers of the various companies when seen would admit that such an agreement had been reached.

The manager of one of the largest said, when asked concerning the intention of the manufacturers: "I really cannot say what action we will take should a man be arrested for using one of our machines. We might take it up. If the matter looked serious we probably would do so to protect our own interests. Other industries besides ours would suffer considerably if such a law is operative. Take the oil business, for instance; the Standard Oil Co.'s profits might be affected. Then, if our machines are put out of use there will be a decrease to a certain extent in the rubber industry and a number of others. It is a serious question when looked at in that light. As nearly as I can find, New York City is the only place where there is such a law, and the automobilists here are powerful enough to have the measure, as it affects them, amended. If the law is effective and automobiles are included within its application, we will, doubtless, take some action."

The manager of another large concern said: "I do not think that the law quoted by Mr. Murray will affect us. The idea that automobiles that use gasoline or benzine as a fuel are dangerous to the life and limb of the occupants, or of the general public, is absurd. With the improved machinery and boilers that manu-

facturers use now an explosion is almost an impossibility. Of course, by gross carelessness on the part of an operator it would be possible for the vapor to explode, but under ordinary conditions the fluid is as safe as ordinary lighting gas. The machines that we build do not carry more than three gallons of gasoline. We always point out to the purchasers of our vehicles that it is cheaper and safer to buy gasoline daily, on account of its evaporative qualities, than it is to keep any large amount of it in stock. We also impress upon them the fact that there is a clause in their insurance policies which prohibits the storage of gasoline or benzine in larger amounts than five gallons. With three gallons of gasoline a motor can travel from thirty to ninety miles, so that there is really no necessity for keeping more than five gallons of the fluid on hand. I shall have the company's lawyers look into this matter fully, and if we do come within the law, of course steps will be taken to remedy matters at once."

The manager of the Electric Vehicle Company of New York also thought that Mr. Murray might be mistaken in his interpretation of the law.

"This company does not operate any vapor automobiles in this city at present," he said, "so we are not apt to be bothered. But we are building such vehicles, and sooner or later will have them here. If this law is operative I cannot understand why the authorities have not put it into effect before. However, it is better to have the disputed point settled once and for all, now, than to wait until there are more automobiles in the city.

"As I interpret the law, any person who has gasoline or benzine in his house for any purpose, to clean clothes, for instance, is liable to arrest. I think that the law is preposterous as regards automobilists, and that the authorities should take steps to see that it does not apply to a vehicle that is so much used, and which is, in fact, a necessity. Vapor machines have been in use in France for eleven years, and in this country for the last four years, yet I have not heard of any serious accidents owing to an explosion of the gas. If the gas did explode the only person that would be apt to suffer would be the man in the automobile; but the machines are built now so that they will not explode. The general public would not be affected certainly."

CYCLE SPEED CHANGES

A question that has recently arisen among French manufacturers of tricycles and quadracycles is the advisability of doing away with pedals and chain mechanism heretofore used on all such machines for starting and for additional power when extraordinarily steep hills or poor stretches of roadway are encountered. To solve the problem machines have been constructed in which the motive power has been greatly increased, one cycle having a four horsepower motor, while others have been fitted with speed changing devices which fits them for doing additional heavy work without the aid of the rider.

The ordinary machine as it stands today is powerful enough for all purposes to which a moto-cyclist with moderate ideas could wish to put it, and an increase in motive force would make it extremely dangerous in the hands of anyone but a competent driver. The tricycle is not the easiest machine in the world to handle at best and to place the rider at the mercy of a more powerful motor than is now used would be a risk unwarranted. Many riders might have success with such a machine, but in the hands of the great majority of users they would more likely prove disastrous.

In the case of the speed changing device, it is but reasonable to expect better all-round satisfactory results by reason of the more economical operation of the motor as well as having it under more perfect control at all times. The device may add somewhat to the machine's cumbersome appearance, but its assistance in making the machine of greater

efficiency will more than counterbalance its heavier appearance.

The racing man may choose the high-power motor, but the conservative element will be satisfied with a machine the efficiency of which cannot be doubted even though its speed is not so great.

In Paris recently a test of these two classes of motor cycles was made over a course sixty-two miles in length, twenty-three competitors using high-power motors and eleven using machines fitted with speed changing devices. The course was hilly, was, in fact, chosen for that reason, hence the results were watched with interest by a large number of makers, experienced drivers and others.

Osmont, on a quadracycle, won in 2:06:18 2-5, being followed by Rolland, 2:07:41; Doral, 2:10:33 2-5; Bardin, 2:27:25 2-5, on tricycles with trailers, and six other competitors on four wheelers, all of whom used the high-power motor in preference to the speed changing device. Although the race was won by the high-power advocates, the proportion of finishers inside the time limit of four hours was in favor of the speed-changing device. All those who finished first on the more powerful machines were experienced hands, while the other machines were practically in the hands of amateurs.

The cost of operation was, however, in favor of the slower and more efficient machines, a feature which is of more interest to the general buyer than the speed which was attained. Comfort was also in favor of the slower machines, hence it might be said the only thing the race proved was that in the hands of competent men the more powerful machine was the more speedy, but more costly in money, and what is more important, comfort.

Each machine carried an extra passenger, the quadracycles using a seat in front and the tricycles a trailer for the purpose. Under these conditions the time made by the winner was remarkable, his speed averaging close to two minutes per mile.

FIRST ELECTRIC STABLE

We believe it is a fact that a Newport company was the first in this or any other country from which automobiles were "let" to any person who desired them, with or without drivers, says the Electrical World and Engineer.

The problem to those in charge of this plant was one in which precedent and experience were but small factors. From the beginning to the end, it was a case of new problems that must be solved by new solutions. At the start there were three widely different factors to be brought into harmony; namely, an empty carriage and horse barn, the summer colony and the automobiles.

The horse barn must without change be made to accommodate the automobiles, their batteries and charging apparatus.

The summer colony must be taught proper care in handling the carriages. Their co-operation must also be secured in preventing reckless driving, and their assistance in having the cross walks and roads improved by the city. And lastly, methods of repair and inspection must be worked out, that would keep the repair bills down and make the plant a paying investment.

As soon as the first automobile arrived, the electric light wires were tapped and run to the automobile station, where, with the assistance of a barrel and two stove lids, a rheostat was improvised for charging until the arrival of a switchboard. Then the automobile was at once put upon the streets, and kept making the rounds of the fashionable quarter, with the result that within a week all of the ten carriages that had arrived were engaged by the month, and a waiting list of customers started. Not once during the summer was one of the twenty carriages that arrived later idle; in fact, at one time there were thirty names on the waiting list. So thoroughly and success-

fully were the carriages introduced, that, notwithstanding Dewey Day and the yacht races at New York, the regular customers held their carriages till the middle of October.

The switchboard, which the contractors promised early in June, did not arrive till the first of September. In the meantime temporary rheostats were improvised by using eight coils of number twelve galvanized iron wire and large porcelain insulators.

As more of the carriages arrived it was found impossible to care for them during the day only. It was also clear that some systematic care of routine must be given them. After some experimenting, the following routine was adopted as best filling the severe requirements of such a plant:

1. When the carriages were brought in for the night they were immediately washed.

2. They were then taken from the washstand, sponged, chamoised, and polished by their drivers.

3. The carriage was then run to its night berth for inspection and charging.

4. Before being charged the rear axle was jacked up and both rear wheels taken off, and balls and cones examined and oiled before the wheels were returned.

5. Commutator and brushes examined and cleaned.

6. All bearings examined and oiled.

7. The combination meter examined while wheels were being run clear of the floor to see if the normal amount of power was being consumed.

8. The brake tried to see if both wheels stopped together.

9. Gong and lamps examined.

10. Jacks removed from rear axle and charging plug inserted.

11. Steering gear tried and examined.

12. When fully charged a large card with the word "charged" is placed on the carriage in a conspicuous place.

13. In the early morning the tires were inflated while the carriage was still in its night berth.

14. A running test of the brakes in the yard.

15. "Charged" card is reversed, showing the word "ready."

The carriages were delivered and returned at any hour of the day or night. The heaviest call for delivery was at 9 in the morning, and for returns at 10 at night, though quite often the last carriage was not in till 6 the next morning.

AUTOMOBILE FIRE ENGINES

The experiments of "Capitaine Ingenieur" Cordier with automobiles in connection with the Parisian fire department have proven so satisfactory that six additional electric machines have been ordered, including a hook-and-ladder, pumping engines and hose trucks. These will be used in connection with the exposition this summer.

The vehicle with which the experiments have so far been conducted, of which an illustration is shown, is of the gasoline type. It has proven very satisfactory, arriving at the scene of the fire often ahead of horse drawn vehicles that had a much shorter distance to go. The vehicle was constructed by MM. Bouquet, Garcon & Schiore, of Neuilly sur Seine, after designs of their own.

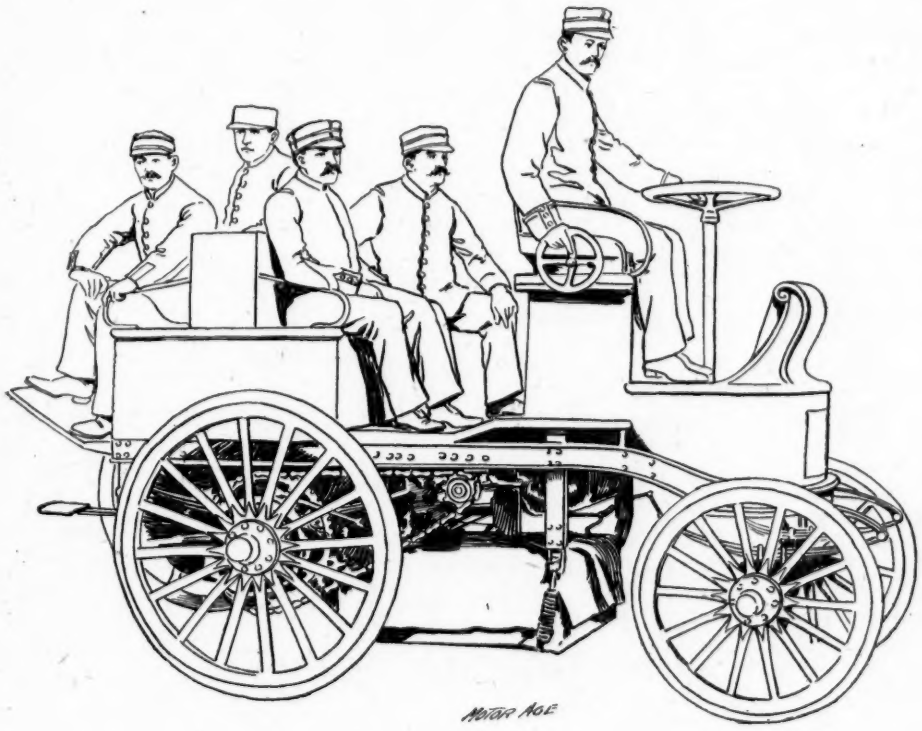
It is the avowed intention of the Paris department to replace the present horse drawn engines, carts and trucks by those furnishing their own motive power as rapidly as is consistent with properly testing the various styles which the makers show every disposition to submit for trials and with selecting the types that are most practical.

This disposition on the part of the Parisian department is particularly noteworthy from the fact that, judged by the standard of excellence maintained by the

fire departments in the various large cities of America, the Parisian department has been woefully behind the times, both in regard to the expedition—or lack of it—with which they reach the scenes of fires and the manner in which they cope with the blazes after reaching them.

In marked distinction to this action of the Frenchmen is the stand taken by the London fire department, who have received numerous offers of experimental engines, but have rejected the offers on the grounds that "experiments are dangerous." In the meantime the newspapers and technical press of England are lambasting the heads of the department as unprogressive old fogies and bewailing the fact that they are prevented from enjoying the advantages that modern science lays at their door by the old fashioned notions of their officials.

It would seem that in fire engines, of all vehicles, the feature of self-propulsion would appeal most strongly. From their very nature, they must be provided with engines and pumps and the very mechanism that makes them useful after being dragged to fires, could furnish the motive power for getting them there with all expedition.



PARIS HOSE CART.

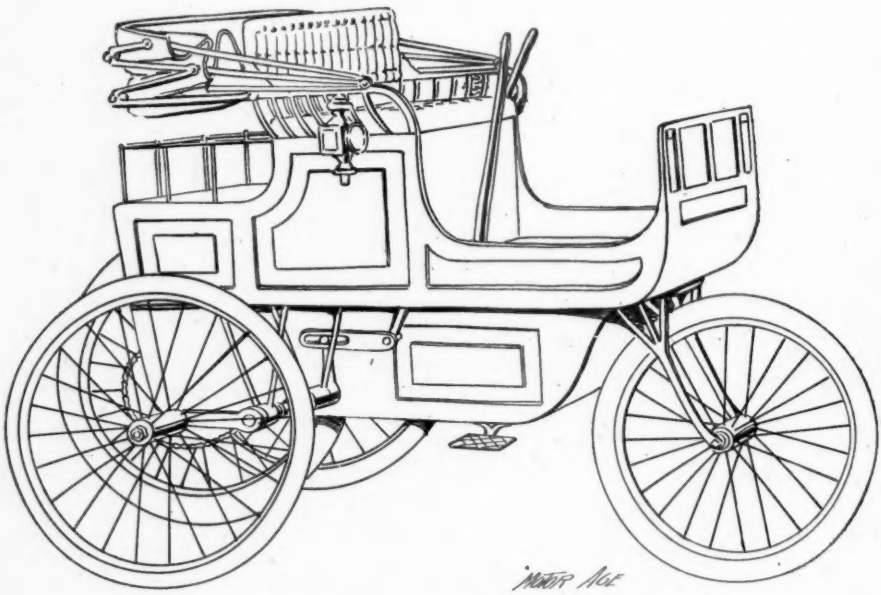
Arrived at the scene of a fire, all that would be necessary in a properly constructed fire engine, would be the moving of a lever and the power of the engine would be transferred from the traction wheels to the pumps and the engine would be ready for business. There would be no unhitching and leading away

of horses and no time lost on this account. The driver and the engineer would be one and the same person.

The only wonder is that this has not been thought out and put to practice many long years ago.

KENT'S PACEMAKER

The accompanying illustration shows the unique steam carriage made by the Colonial Automobile Co. of Boston, called Kent's Pacemaker after its designer A. W. Kent of this company. It is provided with a vertical tubular boiler similar to the Stanley and is provided with one steering wheel in front and one driving wheel in the rear, this latter being set in the center of the vehicle. At either side of this driving wheel and on the outside of the vehicle, are two other wheels, which, however, are intended only to give stability to the vehicle when starting and going at slow speeds. Mr. Kent claims that when the vehicle is once under way the two auxiliary wheels are entirely unnecessary. Consequently there is provision for lifting them off the road, permitting the vehicle to travel as a bicycle. The weight of the entire vehicle is a trifle in excess of 500 pounds. Other styles of vehicles are also under construction.



WHERE THEORY OR PROMISE PREVAILS

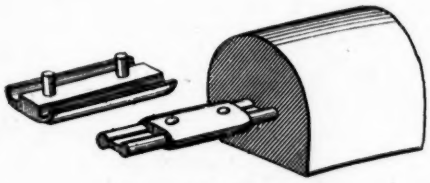
PROBLEMS WORKED OUT

TWO TIRE PATENTS HAVING LITTLE IN THE WAY OF NOVELTY—A NEW ROTARY STEAM ENGINE—A STEAM CARRIAGE THAT HAS BEEN PUT TO MANY TESTS

A TIRE PATENT

No. 640,000, to Frank W. Kinney, Chicago, assigned to the Calumet Rubber Tire Co., same place.—This is one of the numerous devices for holding rubber tires to the rim. The only point of novelty in the invention is the projections on the retaining band to prevent the tire from lateral motion, as shown in the illustration. One claim is allowed as follows:

"In a vehicle-tire, the combination with a retaining band or wire having thickened portions and channels upon its opposite sides and having its ends provided with holes to receive the retaining-pins, of the joint-fastener comprising opposite sections having inwardly-extending side flanges and having intermediate longitudinal ribs to enter the channels of the band or wire and having pins for uniting said sections together, said pins passing through the holes in the ends of the band, substantially as described."

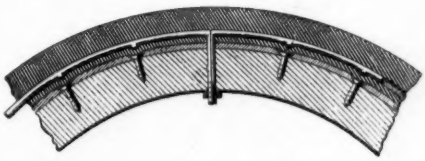


Kinney's Tire Retainer.

SECOND TIRE PATENT

No. 640,082, to D. E. Bennett, Melrose, Mass.—The chief claim to novelty in this patent, the objects of which are similar to those of the foregoing, is the studs on the retaining strip to prevent "creeping," as shown in the accompanying cut. Two claims are allowed, of which the first is as follows:

"In a vehicle-wheel, the combination with the felly and rim having a hole through the same, the rim forming a channel for the tire, of a rubber tire having an opening extending longitudinally therethrough, a metal band passed through the opening in the tire, and means securing the ends of the band to the wheel; together with cross-bars or projections at intervals along the band, substantially as shown and for the purpose set forth."



Bennett's Tire Retainer.

NEW ROTARY ENGINE

An ingenious rotary engine, in which the steam is used expansively, has been patented by William F. James, of Phoenix, Arizona Territory, says the Scientific American.

Fig. 1 of the accompanying illustrations is a perspective view of a compound engine; Fig. 2 is a cross-section, showing the cut-off valve and abutment.

The cylinder casing is provided with two recesses, one of which serves as an exhaust-chest and the other of which receives the abutment. The piston upon which the abutment bears consists of a block, C, secured to the outer surface of the piston disk so as partly to close the steam space. Secured to the block, C, is an inclined plate resting on the piston disk. By placing packing plates between the inclined plate and the block, C, the depth of the piston in a radial direction may be regulated. The abutment, A, is

hinged to the outer casing so as to swing up or down in obedience to the action of the rotating piston. The abutment is provided with an extension engaging the wall of the recess; the swinging movement of the abutment is therefore limited. By this means the disk is relieved of the pressure of the abutment without destroying the steam-tight contact. A steam port extends through the abutment and opens at the swinging end so as barely to clear the wall of the steam chamber. When the abutment is in the position shown in Fig. 2, steam is admitted through ports in the abutment recess. To avoid the jar due to the seating of the abutment upon the disk, a dash pot is employed, entering a hole, B, in the casing.

In order to work the steam expansively, a rotary cut-off valve is employed,

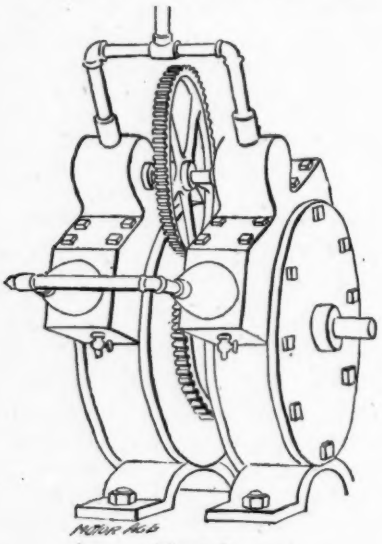


Figure 1.

which is geared with the piston shaft. The gears are of such diameter that the valve and shaft rotate synchronously.

By providing the engine with two or more cylinders the pistons are placed opposite each other, so that there are no dead centers.

ATLANTIC AUTOMOBILE

The illustration that appears on the front cover of this issue of the Motor Age shows the Marsh motor-carriage. On the structural details of this carriage, the Marsh brothers have spent nearly three years of experimental work after giving the subject nearly as long attention from a theoretical standpoint. After this length of time it is not strange that they should have succeeded in producing a ve-

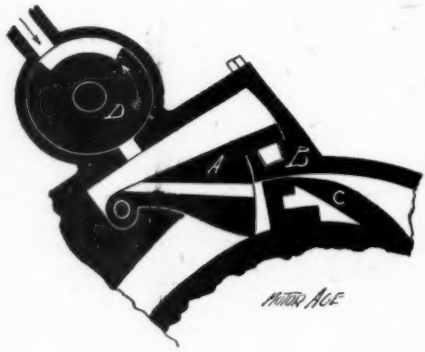


Figure 3.

hicle of which much may be expected without danger of disappointment.

The carriage shown is one that has been in practical use for more than six months and which has been put through some wonder performances, including a mile on the road in the remarkable time of 1 min. 33 3-5 sec., and the climbing of some very stiff grades. Among these is Cory Hill, near Brocton, which has for years been recognized as a grade almost impossible to negotiate on a bicycle. The rider who could surmount it could lay claim to be a hill climber par excellence. The Marsh carriage ascended this grade at the rate of fifteen miles an hour.

Some of the tests to which this vehicle is continually being out by its maker, are enough to make onlookers believe that he has taken leave of his senses. Not contented with stopping almost instantaneously when going at a high rate of speed and making the machine perform all sorts of evolutions, he must compel the vehicle to climb up curbs and go through all sorts of places and do all sorts of things foreign to the nature of any vehicle. He does not recommend such practices but indulges in them for the purpose of convincing the skeptical that a motor-vehicle is both staunch and docile, as well as speedy.

The carriage is a steam driven vehicle, the steam being generated in a helical

water-tube boiler which has previously been illustrated in the Motor Age.

The Atlantic Automobile Manufacturing Co. which have succeeded the Marsh Motor Carriage Co. are rapidly getting into position to turn out their vehicles in quantities and expect in the early spring to be making deliveries. The company has ample capital, and having completed a long period of experimental work, should experience little trouble in living up to their expectations.

NEWS OF THE TRADE

AMERICAN ELECTRIC MOVES

The American Electric Vehicle Co., the pioneer automobile concern of Chicago, and one from which a number of the prominent makers of electric autos have graduated, has moved its factory to Jersey City and will soon establish offices in New York City.

In discussing the change of base with a representative of the Motor Age, General Manager C. E. Corrigan said, "One reason for the change is that there is more business to be had in the east than there is here in Chicago. Chicago is a good manufacturing city, but we feel that we will have an advantage in being located where there is the greatest sale for automobiles. You know that there are a great many more people who have spare time and money in the east than there are here. Why, New York has thousands of wealthy men where Chicago has one, not to mention all the territory tributary to New York."

While Mr. Corrigan did not give any further reasons for the move, he intimated that the one that he gave was not the most potent one.

DURYEA BRANCHES OUT

The Duryea Mfg. Co. write as follows:

"Editor the Motor Age.—The establishment of a factory at Providence, R. I., for the purpose of getting out motor vehicles of the heavy goods variety, necessitates the presence of our general manager, Mr. Chas. E. Duryea, in that city for the next few months.

"On that account the office work of the Duryea Mfg. Co. will be directed from Providence instead of Peoria and mail addressed to Providence will avoid delay.

"This move is not in the nature of stopping any work at Peoria but is simply a progressive step toward getting out more goods and a greater variety of styles. Our goods here will be turned out in rapidly increasing quantities by the Peoria Motor Vehicle Co., whom we have licensed for this work."

TIRE BUSINESS CHANGES

Owing to the recent changes in the bicycle and rubber industries, the Peoria Rubber & Mfg. Co., of Peoria, Ill., will discontinue manufacturing at that place. The bicycle business will hereafter be looked after by the Sterling branch of the American Bicycle Co., at Kenosha, Wis., while the bicycle and vehicle tire business will hereafter be attended to by the India Rubber Co., of Akron, Ohio. With these changes, C. J. Butler, manager of the Peoria Rubber & Mfg. Co., while retaining that position, removes to Akron wheer all communications regarding the rubber business of the Peoria concern should be addressed.

Mr. Butler is an old timer in the rubber business and is regarded as an authority on all matters connected with it. He grew up in Akron, the center of the rubber industry, and has been connected with that business in various capacities a large part of his life. Some years ago he assumed the management of a glass company in the Indiana gas belt, in which company he was financially interested.

Removing to Jonesboro, Ind., he took the management of the Indiana Rubber & Insulated Wire Co., in which he was also interested, and the affairs of which he conducted with marked success, finally leaving for Peoria to assume the position which he still holds, in connection with his new one. His advent in the new position insures an increased activity on the part of the India Rubber Co.

ABOUT WILLARD BATTERIES

In answer to queries, Sipe & Sigler write as follows in regard to the Willard battery and the features thereof which they are at present advocating:

We have adopted the emergency rate because it is allowable with the Willard battery and because in some cases it becomes highly important in automobile work, and because it is one of the chief features concerning which fault is found by the general public. While as a matter of fact in nearly all cases the batteries may be charged over a very long period of time, consuming practically the entire night, yet there are times when the owner of the carriage may desire to make two or three long runs in a day, and in such case it is highly important to have a battery that is capable of receiving a charge in the minimum of time. This, however, is not nearly so important as many prospective purchasers believe, for, when compared with the horse, it must entirely excel the capabilities of the horse, for, to perform the same services, would require several teams.

Our purpose in establishing a rate per year for maintenance of the battery is to take all of the "Greek" out of the proposition and to relieve the owner of the carriage of all responsibility in this regard and of all indefinite expense.

We believe that practically all of the question as to the entire practicability of the electric automobile directs itself to the storage battery, and we feel that, when we remove all doubts as to the trouble and expenses that will follow that, we have left the subject without any cause for fault finding and we have made it an assured and practical success. Again, we believe this is the proper thing for the manufacturer to do. The manufacturer should know what his product is capable of doing and, knowing that it will do, he should not hesitate to guarantee it.

We know that the Willard battery will perform the services required of it in automobile work. We know that the life of the positive plates will cover a period of some years and, knowing all these things, we do not hesitate to undertake to maintain the battery and to give it every required care for a period of years. This contract will include every detail of the care that the battery requires, except the mere matter of charging. It will even include the addition of electrolyte to overcome the evaporation, and will insure a perfect working battery at a specific outlay, leaving no element of uncertainty, either as to this item of expense or as to the life of the battery.

From the above you will observe that our primary reason for maintaining the batteries is to promote the industry; our secondary reason is purely one of business.

We are entirely satisfied that the Willard battery will perform this service in a way that no other battery will, and that its life will be much greater than any other battery in such service, and the actual cost of maintaining the same over a period of years will be so low that we can make a handsome profit in this branch of our business, and our contracts are all based on figures that we feel certain will furnish entirely satisfactory returns, although the cost for such services will be but trifling compared with the cost of maintaining the horse.

MINOR NEWS AND COMMENT

LOOKING BACKWARD

Editor The Motor Age:—The objections made by the New York City Park commissioners to the automobile that it is liable to frighten horses and ought therefore to be excluded from the parks again emphasizes the fact that the law making powers are never up to date. I wrote to the commissioners of the District of Columbia last summer for information as to what objections might be raised against the use of a steam motor on the streets of Washington. I was well aware that the laws required all steam engines to be run by a licensed engineer and did not want to be prevented from using a motor after purchasing one and doing away with my horse.

The commissioners decided strictly in conformity with the law and showed a

disposition to favor the use of the new vehicle as far as their duty would permit. It was rather strange, however, that the board of steam examiners, to whom my letter was referred, should give the steam motor vehicle a black eye while the superintendent of the water department went into the matter in a more practicable manner and reported favorably on its use. In this connection the reader is referred to the article entitled "License for Steam Vehicle Drivers" in the November number of the Motor Age.

The decision rendered by the commissioners opens the way for the use of the automobile in the city under certain restrictions which will doubtless be modified as the future may prove necessary. I do not see how, with the present law, they could have rendered a fairer decision.

It has been shown that the use of the motor vehicle, in an economic and also from a sanitary point of view, is a step forward in the march of progress. It now costs me approximately about seven cents per mile for my riding with a horse as against one-half cent per mile by using the motor. The city authorities pay thousands of dollars per year for street cleaning made necessary almost entirely by the use of horses. To this add the proportion of cost of repair and the comparison is too largely in favor of the machine against the horse. The filth and odor of thousands of stables in a city should receive their share of attention in this connection. Now, the main question is, shall those who execute, in other cities, the laws we now have execute them in such a manner as to encourage progress or will they still look backward?

The objections brought against the auto were also thrust at the bicycle, cable and electric cars and the like when they were first introduced, but the horse got used to them much too quickly for the liverymen. The fault is not with the horse. A foolish driver will soon make a fool of the best of horses. I have been a lover and a user of the horse for many years and resent the injustice done that noble animal. He is not only ready and willing to learn and do his whole duty, but is patient even with a brutal, foolish driver. If the use of the automobile is to be censored by a board of examiners (with the superintendent of the water department absent) let us also have a competent board to certify to the fitness of drivers to handle horses where carelessness or incompetency might endanger human life. G. EDMONSTON.

Washington, Dec. 28.

RACING PLANNED FOR PAU

A cable dispatch announces that Pau, France, is to have a series of automobile races. W. K. Thorne is arranging the races for the end of February. Baron de Zuyler has accepted the position of president d'honneur, Mr. Thorne being the local president. The total of added money will be no less than 14,000 francs. The town of Pau is generously giving 5,000 francs.

The dates fixed are February 22 to 27, inclusive. On February 25 the great event will take place over a distance of 335 kilometers (about 210 miles), the itinerary being Pau, Tarbes, Naubourgne, Dax Bayonne, to Pau. If big automobiles come a speed of sixty-four kilometers (forty miles) an hour will probably be made, the course chosen being in its greater part a level one and the line of rivers being followed. The Pau tourists' race of about 160 kilometers (about 100 miles) is fixed for February 22.

Mr. Thorne expects that as these races will be the first of the season they will attract a number of the newest and fastest models. The constructors will have the advantage of running over a level of admirably kept roads, with numerous long, straight stretches.

The full programme will shortly appear, and the meeting which is sure to be well organized and carried out, will doubtless attract a great many rotaries.

INTERCHANGABILITY

One feature of automobile construction to which attention should be paid, and, in a considerable number of cases, is paid, is that of constructing the motive mechanism and running gear in such manner that they are independent of the style of body. In other words the run-

ning gear and motor mechanism should be constructed so compactly that the whole can be fitted with various styles of bodies. By following this plan, it is possible to offer a very large selection of styles in vehicles without an encumbering multiplicity of details. Three styles of running gear fitted with motor mechanism of different powers is all that is necessary to enable the maker to furnish almost any style of light or heavy carriage or delivery wagon. Simple as is this fact, there still appear to be manufacturers who entirely overlook it.

HOW TO PRONOUNCE IT

It is not strange that the word "automobile" which was first used in France should savor of the French method of pronunciation in this country, despite the fact that such authorities as the Century and the Standard dictionaries do not countenance such pronunciation. According to both these authorities the accent comes on the third syllable and the last one is given the sound of "bil" not "beel" as the French have it. The word is therefore pronounced

au - to - mo' - bil.

If the French pronunciation be used, which it should not be, the way to pronounce the word is au - to - mo - beel, with the same accent on each of the four syllables as the French give the different syllables of all words the same prominence.

NOTES OF INTEREST

A French electric is reported to have been run 124 miles without recharging.

After numerous delays, the Elgin (Ill.) Automobile Co. has turned out its first complete vehicle, a runabout.

The managers of the various express companies are constantly carrying on experiments with motor-vehicles in various cities.

In the recent Belgian automobile races two carriages built by a Belgian firm from designs by J. Frank Duryea, arrived second and third, respectively. The entries were numerous, and among them were six or eight of the famous Panhard and Levassor racing machines, which have won the majority of the races held in France in the last few years.

The Automobile Club of Great Britain has a membership of 588 persons. That is an increase of forty-eight members in five weeks. The club had only 163 members on January 1, 1898.

Winton and Riker vehicles will doubtless be two of the American vehicles to compete for the Gordon-Bennett cup. Whether a third will represent this country is yet a matter of doubt.

The Italian army is now studying the advisability of introducing the automobile. It is considered that it could be used both for transporting ammunition from the rear to the firing line and for carrying the wounded to the nearest hos-

An automobile livery is under installation in Cleveland. The old athletic club house has been leased by an attorney who reports that he represents Chicago capitalists. It is stated that patrons of the livery will be allowed the option of renting rigs by the year, month, day or hour.

Chairman Ellicott of Chicago's automobile commission, has set the present week for the opening examination of motor-carriage drivers. It is rumored that the commission has decided that steam carriages will be entirely barred from the city, but no confirmation of the rumor can be obtained, Chairman Ellicott refusing to discuss the matter for the present. A rather serious accident in which a pedestrian was recently knocked down by one of the electric cabs may have the effect of making the restrictions of the commission extra severe.

Business Manager W. D. Gash of the Waltham Mfg. Co. is authority for the statement that his company is making active preparations for supplying the wants of that portion of the public whose desires are for motocycles. The company expects to soon be able to get fifty or more motors per month and may be able to get more. It is hoped, by spring, when the bicycle output is finished, to devote the factory almost exclusively to the manufacture of motocycles. The company has received more than 1,200 inquiries about this type of machine.